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ABSTRACT

Training and education in the construction craft industry for the 1990s and beyond will be affected by changes in industry, qualifications, and education and training provision. A shift away from apprenticeship programs toward shorter periods of training and further education has been accompanied by an increasing emphasis on the demonstration of competence in specific skills and activities. The development of National Vocational Qualifications (NVQs) for the construction industry in Britain permits further education colleges to move toward a greater flexibility of learning provision. This opportunity has implications for college-employer relationships, college marketing, college management, and staff development. The implementation of NVQs implies changing attitudes, managing change, communication with industry and marketing to industry, flexible programs and delivery, reappraisal of assessment systems, development of staff to meet new needs, and costs of offering NVQs. Some issues that need to be addressed in realizing the potential of NVQs are reappraisal of costing and allocation of resources, effective use of training opportunities gained by cooperation with other training providers, demands for training opportunities outside of normal working hours, and greater cost of materials. (YLB)

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March 1992

NATIONAL VOCATIONAL QUALIFICATIONS AND THE CONSTRUCTION CRAFT INDUSTRY

INTRODUCTION

This bulletin describes a variety of themes and issues which have emerged and will continue to emerge from the introduction and implementation of National Vocational Qualifications (NVQs). Many of these themes and issues affect all occupational areas and all further education colleges; some are unique to particular occupational areas such as Construction, and indeed to sub sectors such as Construction Crafts.

In May 1989, a Construction Industry Training Board (CITB) and Further Education Unit (FEU) collaborative project, funded by the then Training Agency (now Training, Enterprise and Education Directorate, TEED) set out to investigate the implementation of NVQs in Construction Crafts within further education.

Five colleges agreed to undertake the work which was based on the conditionally accredited Level 3 NVQs in the traditional crafts developed by CITB. The occupational areas covered were brickwork, carpentry and joinery, woodmachining, painting and decorating, and shopfitting.

Whilst the qualifications offered during the pilot programme were the conditionally accredited NVQs, the fundamental differences between NVQs and traditional qualifications were also addressed.

This project addressed a number of issues arising from the implementation of NVQs and offered solutions, advice and examples of good practice which are still highly pertinent to colleges.

Using information from other sources, as well as the project report, this bulletin focuses on the way forward for Construction Crafts qualifications, challenging many traditional approaches and the way in which these qualifications have previously been offered by FE colleges. This bulletin is presented in two parts: the first updates the reader on recent changes in the training infrastructure of the industry; the second deals with the implications of the introduction of Construction Crafts NVQs into FE colleges. It is hoped that the bulletin is informative and useful in this period of transition.

Thanks are due to the staff of Reading College of Technology; Hendon College; Brooklyn College, Birmingham; Wakefield District College and Weerside College, Sunderland; CITB and Diane Pointing.

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TRAINING FOR THE CONSTRUCTION INDUSTRY: A CHANGING CONTEXT

THE CONSTRUCTION INDUSTRY

The construction industry is particularly affected by the vagaries of the economy and as such has experienced many changes in recent years, e.g:

- the number of self-employed people in the industry has more than doubled with the result that about half of all construction operatives are now self-employed;
- 96% of construction businesses employ fewer than 20 people and three per cent between 20 and 99;
- larger firms now carry fewer directly employed workers;
- contracting and sub-contracting by main employers has become increasingly common, construction operatives tending to work for a company for the duration of the contract only;
- there is growing, if still limited, demand for traditional craft skills, not only in restoration and conservation work but also in the reintroduction of traditional materials and techniques;
- 'under recruitment' and high wastage compound the problems caused by structural changes;
- new specialist 'trades' have emerged, such as ceiling and kitchen fitting.

TRAINING IN THE CONSTRUCTION CRAFT INDUSTRY

Construction employers do have a tradition of using the further education system for training new recruits to the industry although there has been a shift away from apprenticeship schemes towards shorter periods of training and further education. This shift has been accompanied by an increasing emphasis on the **demonstration of competence** in specific skills and activities. There has also been a move to provide access to training for potential craftspeople of all ages. Whilst many employees

receive some form of structured training there are significant numbers of employed and self-employed people in the industry who have gained their knowledge and skills simply through experience.

Although there are some twenty-five different construction crafts, the five main crafts of carpentry and joinery, brickwork, electrical installation, plumbing, and painting and decorating account for over 90% of construction craft students in further education (HMI report - *A Survey of Construction Craft Courses*, 1987-89).

TRADITIONAL CRAFT QUALIFICATIONS

Historically, traditional craft qualifications were provided only for craft apprentices, recruited largely from school-leavers. In more recent years, the percentage of students aged 21 and over, attending construction courses has increased. With the current drop in the number of school-leavers, and a shortage of skilled people in the industry, there are even more, and newer attractions in opening up access to construction craft training for adults.

Traditional craft qualifications only recognised formal learning in the college, yet learning can and does take place elsewhere, at work and in other informal situations, and the time prescription of traditional craft qualifications did not allow for individual trainee progress. Therefore traditional craft qualifications made little or no allowance for competences already acquired even though the 16-year-old recruit may have acquired relevant skills at school or in another context and the older entrant could have had a range of previously acquired skills.

The structure of traditional craft qualifications provided neither flexibility of learning nor accreditation for skill gained which fell short of that required for a complete qualification. Learning programmes had a college/centre base and assessment by tests and examinations. There were doubts about whether this type of training provided a true indication of competence at work since the craft tests were often artificial in nature and environment and did not always reflect the tasks undertaken in the workplace. There were concerns over examinations based on job knowledge which, whilst of undisputed importance, did not in itself provide an indicator of competence and of ownership of skills and dexterity.

The HMI report on Construction Craft courses, referred to earlier, concluded that in many areas there were good foundations on which to build and develop the new programmes needed in the next decade. (It should be noted that none of the courses surveyed for the report were then fully accredited NVQs.) There were areas, however, which gave cause for concern, including the lack of variety in some college-based sessions, the need for information technology (IT) to be a more common component in craft courses, the need to integrate general education and vocational components, and the improvements required in staff development.

NCVQ AND THE 'NEW' QUALIFICATIONS - NVQS

The National Council for Vocational Qualifications (NCVQ) was set up to establish a simple, coherent and comprehensive framework of National Vocational Qualifications (NVQs) based on national standards of competence in England, Wales and Northern Ireland. NVQs are designed to attest to competence in employment; that is the possession of knowledge and skills and the ability to apply them at work. The national standards of competence on which NVQs are nationally agreed are devised by a lead body (LB) for the sector, led by employers, working with employees (including trades unions) and their education and training advisors. The qualifications' unit structure and assessment requirements mean that NVQs may be more accessible to students than the qualifications they replace. NVQs are expected to encourage career progression and to increase skill levels and quality of performance. In the construction industry, it is hoped they will facilitate movement between disciplines and maximise the profitable deployment of the industry's most valuable resource - its people.

NCVQ is not an examining or an awarding body. It accredits qualifications based on **standards of competence** which are relevant to the specific vocational area. The design and delivery of qualifications based on these standards are the responsibility of the relevant awarding bodies.

In the past, NCVQ has given **conditional** accreditation to those qualifications which did not meet all its criteria for approval. This happened while developments towards full accreditation were taking place, i.e. NVQs in construction crafts available before December 1990. (NCVQ does not give conditional accreditations now.) Many conditionally accredited NVQs reach the end of their recognition in winter 1991/spring 1992.

In contrast, a fully accredited award is one which has been approved by NCVQ as meeting the criteria. In principle, NVQs are free from all barriers to access, such as age, or required periods of study or experience. They are, therefore, open to all and available at any time to candidates who wish to be assessed subject to any legislative requirements. Indeed, some candidates may have their previous experience accredited, in units of the NVQ, through the process known as Accreditation of Prior Learning (APL). This means that learning programmes can be designed for individuals, may be constructed around different NVQ units and may be of different lengths. In practice, it is sometimes necessary to set some constraints, for instance, NVQs in construction crafts must observe legislation which prevents individuals below a minimum age performing some tasks.

The NCVQ 'hallmark' signifies:

- a defined level of competence in a nationally recognised system;
- acceptable national standards for the qualification;
- assessments based on skills, knowledge, understanding and ability in application;
- no unnecessary barriers to access;
- routes for progression.

The NVQ framework currently has five levels - the following definitions are intended to be indicative rather than prescriptive and should be seen as clarifying rather than changing the definitions in previous NCVQ publications.

Level 1 - competence in the performance of a range of varied work activities, most of which may be routine and predictable.

Level 2 - competence in a significant range of varied work activities, performed in a variety of contexts. Some of the activities are complex or non-routine and there is some individual responsibility and autonomy. Collaboration with others, perhaps through membership of a work group or team, may often be a requirement.

Level 3 - competence in a broad range of varied work activities performed in a wide variety of contexts and most of which are complex and non-routine. There is considerable responsibility and autonomy, and control or guidance of others is often required.

Level 4 - competence in a broad range of complex, technical or professional work activities performed in a wide variety of contexts and with a substantial degree of personal responsibility and autonomy. Responsibility for the work of others and the allocation of resources is often present.

Level 5 - competence which involves the application of a significant range of fundamental principles and complex techniques across a wide and often unpredictable variety of contexts. Very substantial personal autonomy and often significant responsibility for the work of others and for the allocation of substantial resources feature strongly, as do personal accountabilities for analysis and diagnosis, design, planning, execution and evaluation.

NCVQ Guide, 1991

The standards of competence which form the basis of NVQs are developed using 'functional analysis' which seeks to break job roles down into 'elements of competence'. These elements are then grouped into units, and a group of units will form an NVQ. The methodology used incorporates not only job skills and knowledge but also task management skills, contingency skills and environment management skills. Therefore, the units of competence are quite different from many previous attempts at modularising courses. An example of an element of competence from the City and Guilds of London Institute (C&G) and CITB Bricklaying (Construction) Level 2 NVQ is provided below.

Element: Form Opening and Position Lintel, Steel and Concrete Beams

- Range:**
- concrete
 - metal lintels
 - steel
 - concrete beams

Performance criteria:

- lintel/beam ± 2 mm
- uniform bearing ± 10 mm
- horizontal position uniform ± 3 mm
- opening formed to position and size as specified
- reveals plumb to within a tolerance ± 6 mm in 1m

Evidence required:

- purpose of a lintel
- reason for position of reinforcement
- distributing load from steel beam
- identification of types of lintels, length and size for safe load bearing

THE CONSTRUCTION CRAFT INDUSTRY: LEAD BODIES AND CURRENT QUALIFICATIONS

The construction industry is represented by two LBs: the Construction Industry Training Board (CITB) and the Construction Industry Standing Conference (CISC). The CITB was established as an LB in 1987, with responsibility for levels 1-4; this work generally covers operatives and craftspeople. The CISC was formed in 1990 through the joint efforts of the Construction Industry Council (CIC) and CITB; its brief is to produce a framework of qualifications for NCVQ accreditation covering professional, managerial and technical occupations within the construction industry, and to make recommendations on related vocational education and training (VET) to meet current and future

requirements of the industry. CISC has an initial two-year life, during which it aims to achieve these objectives.

At the time of writing, five NVQs in construction crafts at Level 2 are fully accredited by the NCVQ. These are:

- Carpentry and Joinery;
- Bench Joinery;
- Painting and Decorating;
- Plastering;
- Bricklaying.

The CITB and C&G are the joint awarding bodies for these qualifications. Quality control is maintained by a team of verifiers who monitor performance of the centres.

In each case the Level 2 qualifications consist of:

- core units of competence common to each qualification dealing with areas of competence which are common to all construction trades such as Health and Safety;
- between five and ten occupational units of competence. In some qualifications various units may be selected from a list of alternatives.

In order to provide these Level 2 qualifications, centres and assessors must meet criteria established by CITB. Anyone may train to NVQ standards of competence, but centres must be accredited if they wish to assess the qualifications. Accredited assessment centres must provide:

- facilities and resources to offer assessment for all units;
- accredited assessors;
- co-ordinators to oversee and ensure that standards are maintained and act as a contact for all transactions with the awarding body.

Unlike the majority of previously accredited NVQs in construction (which received conditional accreditation) these NVQs are composed of fully-integrated, free-standing units of competence incorporating practical skills and underpinning job knowledge.

It should be noted that newer fully-accredited and integrated awards are not compatible with the older conditionally-accredited, combination awards.

New Level 1 and Level 3 awards have been developed using functional analysis and are expected to become available during 1992-3.

THE IMPLEMENTATION OF CONSTRUCTION CRAFTS NVQS

Given the potential flexibility of the NVQ approach, colleges have the opportunity to move towards a greater flexibility of learning provision. This opportunity has implications for college/employer relationships, college marketing, college management and staff development.

NVQs enable colleges to offer a variety of programmes leading to national accreditation. These include:

- programmes leading to any, or all, of the full NVQs;
- a programme leading to accreditation of the five core units only. This could form a 'foundation' programme for those individuals who are still unsure of the specific construction NVQ they want;
- programmes leading to accreditation of the occupational units of any, or all, of the NVQs. These programmes would be suitable for any individual with the five core units, whether gained separately or through a full NVQ;
- single units from any of the five NVQs available;
- multi-skilling programmes constructed so that individuals may achieve the five core units and occupational units from a number of the five NVQs. These programmes may be designed to suit the needs of those who require a number of skills, for instance, kitchen fitters or maintenance staff. They might also be designed to meet local demands for customisation;
- inter-disciplinary programmes created around units from various qualifications. These could include units of competence from other disciplines such as business administration and computer technology.

AWARENESS AND ATTITUDES

Attitudes influence the priority given to development toward change and the effectiveness of that development.

It will take time for the full potential of NVQs to be realised. Many of the attitudes towards change and NVQs among college staff and employers have been based on a lack of real information about NVQs and there may have been some misconceptions about the impact of NVQs on college staff and the industry.

For example, attitudes towards NVQs may be polarised. There may be resistance to any change based on the belief that past training provisions and patterns were satisfactory and that any change must be for the worse. Or there may be a welcoming of change, perhaps in the belief that there is always room for improvement and expansion into new

markets and services and that past methods are now outdated and inadequate.

One college in the project focused on loss of skills and employer resistance to NVQs as reasons for not changing. This college reported that NVQs and the standards set are only reluctantly beginning to be accepted, and thought adequate and relevant to construction work. The notion that there may be new markets to explore and services to offer was treated with scepticism. This focus caused a resistance to change and unwillingness to investigate the potential of NVQs.

On the other hand the opinion of staff elsewhere within the project who have become involved in competence-based programmes and qualifications is that the arrangement is more logical and satisfactory than before. Some colleges in the project reported improved job satisfaction among staff involved in the programmes leading to the NVQ plus a willingness to explore more learning programme developments and possibilities. Some staff who were resistant to change have been influenced by the attitudes of others as well as the responses of trainees and employers and have now accepted, and sometimes welcomed, the changes.

Sometimes staff attitudes may be influenced by management attitudes and it is unlikely that NVQs will be successfully implemented if management are resistant to change, whatever the prevailing staff attitude. One clear message from the project is that enthusiastic co-operative managers and senior departmental staff can draw others along with them.

The points set out below give a guide to changing attitudes. They are based on providing sound information and planning the introduction of NVQs rather than allowing speculation and haphazard development.

- Ensure that management at all levels is informed and understands the full potential and implications of NVQs.
- Inform staff as fully as possible about the features of NVQs and the benefits that might accrue to staff involved.
- Develop business plans for departments to show how the challenges will be tackled and the opportunities capitalised upon.
- Provide clear action plans for development and implementation of programmes.
- Discuss the issues of staff duties and responsibilities.
- Involve local industry and gain support.
- Operate pilot programmes to demonstrate feasibility.

There have been concerns over the scope and level of some units of competence. However, there is nothing in any Construction NVQ document to suggest that colleges cannot train to higher standards than the NVQ standards if that is the requirement of employers. Variation in skill levels already exists in the industry - what is set down is the **minimum** standard acceptable to industry.

NVQs may offer greater potential for learning opportunities beyond the traditional framework of construction craft training. However, it should be noted that until all the levels are complete there may be some interim difficulties in progression to consecutive higher levels. Colleges should be aware of this issue and make contingency provisions.

MANAGING CHANGE

A positive approach to change can develop enthusiasm where reluctance leads staff to find reasons to avoid change and criticise new developments. This reluctance is characterised by focusing on relatively minor issues which appear to inhibit change but are actually organisational and technical matters which need to be resolved.

Managing change is complex. It is bound up in personal perceptions and experiences as well as departmental/group attitudes and reactions from industry.

- Change must be initiated at college and departmental management levels.
- There needs to be clear understanding about the nature and benefits of NVQs, the needs of the industry and of the trainee.
- Staff must feel that they are informed, and must be kept informed, of developments. They must be involved in their own development rather than have plans and training imposed on them.
- There needs to be more staff development focusing on industrially appropriate, rather than academically-led, training.
- Staff need greater knowledge of current industry practice. Staff may have been away from industry for some time with little real updating.
- Work placements in industry and good working relationships with local employers are helpful in changing attitudes.

COMMUNICATION AND MARKETING

Since qualifications are not course driven, colleges may be able to satisfy a range of needs by offering courses in a variety of ways. They may offer flexibility in attendance patterns and opportunities for credit accumulation as well

as more traditional programmes of learning.

Colleges have to maintain regular contact with industry to make sure that they meet and continue to meet industry's local, as well as national, needs.

One way of developing and maintaining local contact is to bring together industry representatives to monitor and oversee local training supporting NVQs. The difficulties involved in setting up and maintaining such a group are far outweighed by the benefits which should accrue. As wide a representation of interests as possible should be included, although the group must be of manageable proportions. Membership need not be permanent, the structure of the group could alter and would typically include:

- identifying local needs and interests;
- identifying college ability to meet those needs;
- monitoring the development of NVQs for the industry;
- assisting the college to develop the necessary resources, including help with any staff development programmes;
- co-operating in field testing and implementing the qualifications;
- assisting in the design of local programmes;
- monitoring and reviewing progress.

One college in the project, having set up a local steering group, demonstrated how competence was developed by setting a target for trainees to achieve by the next group meeting. The group were then invited to visit the college workshops to see the trainees work. They were thus able to see at first hand the achievement of specified competence within a short time-scale. This reinforced NVQ messages and helped employers to understand the capabilities of trainees which could be used to good effect in the workplace.

One college experienced difficulty in securing any interest from local employers in NVQs. The college changed its focus from NVQs only and added other relevant issues to the discussion. They found that employers became more interested and started to ask for information and assistance. This presented the opportunity to introduce NVQs as part of a package of help and support to local industry and showed that NVQs could form part of the solution to other challenges such as quality assurance. Although the number of employers involved is still limited, the general atmosphere is now more positive.

All the colleges in the project attempted effective collaboration with varying degrees of success. The following action plan is based on the successful activities:

1. **Staff information and development.** Ensure that all staff involved are fully briefed on the nature and implications of NVQs and that they will be able to answer enquiries at this initial level. A person should be appointed to disseminate information and answer staff queries.
 - Supplies of information materials, including videos, are available from CITB and NCVQ. Contact your local CITB office and/or NCVQ to arrange supplies of materials.
 - Information from CITB, NCVQ, Confederation of British Industry (CBI) - local CITB staff may be able to help with briefing and there are staff packs and seminars from NCVQ and FEU.
2. **Identify those to be contacted.** Existing employer lists from past enrolments will not be sufficient. Typically, the broad list should include:
 - local construction companies of all sizes;
 - non-construction employers who may have relevant personnel, e.g. gas, water, electricity, telecommunications, housing association, local authority departments;
 - CITB;
 - local employer organisations, e.g. Chamber of Commerce;
 - local Economic Development Unit;
 - local Training and Enterprise Council (TEC).
3. **Prepare and distribute your message.**
 - Simply distributing existing leaflets with a college stamp is unlikely to be sufficient. Issue clear messages to local employers about developing competence and meeting local needs. Local and national market knowledge give a great advantage.
 - Set up a local event in the college on innovations in education and training, i.e. an open evening, demonstration, etc. and invite all to attend. Remember, there must be clear reasons for people to attend as well as informed, helpful people for them to meet.
5. **Identify relevant targets for steering group membership and use every means possible to enlist support.** Follow up all potential leads. Select a steering group from those willing to participate to try to get a broad local view.
 - Remember, give plenty of written notice and choose a comfortable venue and a convenient time

for steering group meetings. Meetings must take place when employers are available, not when college timetables allow. Prepare a clear briefing paper and keep proper minutes with action points. If possible, allocate some tasks to employer members.

- Establish a programme of work, aims and objectives for the steering group meetings.

7. **Keep other local bodies and employers informed** of major steering group decisions - e.g. new programmes.

A collaboration between two colleges, other trainers, the city and local employers was initially concerned with the development and implementation of Employment Training (ET) programmes but began to show potential for dealing with other matters. One employers' federation approached the college with a training issue related to developments in materials and a consequential change in the competence needed by the workforce. The college was able to develop a programme to meet a range of needs within a sector, plan delivery to suit the needs of employers and act promptly.

The programme, which will retrain/top up existing operatives to cope with change, means that employers and operatives can undertake the work required within a fairly short time from the identification of the need.

Another college secured a work placement for a member of staff with an employer to find out about the employer's day-to-day work and investigate the feasibility of workplace assessment. Such a placement brings about greater understanding between the parties and can help to develop a closer working relationship.

Collaboration, therefore, should bring together the expertise, experience and contexts of FE and employers.

In the past, Construction departments in colleges have tended to run fairly rigidly structured programmes (not necessarily through choice) aimed primarily at the 16-17-year-old school-leaver.

With the advent of NVQs and their unit-based structure, departments can deliver a broader range of training to wider markets.

There is evidence that large employers, well placed for membership of employer federations and networks, are very knowledgeable and enthusiastic about the introduction of NVQs. However, these firms are in a minority among those which make up the industry. Some small firms, without the advantages of large firms, may know little, if anything, about the NVQs available in their

own industry. In fact, despite the availability of information from NCVQ, most employers were unaware of the developments taking place. In some cases, college staff have had to devote much time to 'awareness raising' with employers. The colleges had to provide information for employers to make them aware of the development of NVQs and that this was a national, not a local or college-generated initiative.

This awareness raising needs to go beyond describing the new system. Training needs to be seen as a benefit, not a cost or penalty; the expertise of colleges must be recognised and effective training perceived as the route to a stronger, more profitable construction industry.

One college in the project took a bold approach to marketing. As well as removing traditional restrictions on staff it looked at the range of markets it might feasibly serve and the services it could offer. ET programmes have already benefited from the more flexible approach and an agreement has been reached with a local employer to retrain and update staff.

This approach has been started at one other centre which, although not yet undertaking the training, has identified markets for programmes which may only consist of one or two units but still meet a real training need.

FLEXIBLE PROGRAMMES AND DELIVERY

The design and structure of NVQs mean that a variety of routes to the qualification are possible. This in turn means that colleges are now free to offer a greater variety of routes to accreditation and that learning programmes may be much more flexible than they were for 'traditional' qualifications. Whilst colleges may wish to move toward a greater flexibility of provision, it is clear that there are resource and cost implications and evidence that there will continue to be demand for reasonably structured learning programmes. Increasing flexibility will need to be carefully considered, may continue over several years and may be enhanced by co-operation with other colleges and training providers. In this respect, colleges may consider increased flexibility a significant aim of planning.

One way of increasing flexibility is to make units of competence available separately and individually. This allows students to negotiate the units they wish to achieve and the order in which they wish to achieve them. Exploiting the unit structure of NVQs is an important prerequisite of APL and credit accumulation systems, and facilitates the customisation of programmes for employers or individual students.

If units of competence are to be offered separately and individually, all unit materials (unit content, guidance, instruction to trainees on unit completion, and assessment and recording procedures) and all learning support will

need to be available as a package relating to that unit alone and not having prerequisites (except legislative requirements) or other hindrances to independent use.

As flexibility increases the range of possible routes to a qualification, colleges may find it necessary to offer more guidance to students. This will ensure that learning programmes are tailored to individual need and that students receive all the support necessary for success. Students may need support in acquiring study skills and core skills as well as occupational skills.

One of the most significant ways of offering greater flexibility is by offering access to assessment 'on demand'. Assessment for a unit is 'triggered' when an individual student is ready. This enables students to progress and obtain units of the qualification at different rates.

Another way of increasing flexibility and of making a broader range of resources available is to co-operate with other colleges and training providers in the delivery of programmes. Colleges should bear in mind that whilst there are no restrictions on such co-operations there is a five-mile maximum distance allowed between assessment sites covered by one-centre registration. Full details are available from CITB or C&G but, briefly, an accredited assessment centre may have any number of assessment sites approved by a single application and registration as long as the sites are no more than five miles apart. Sites more than five miles apart must be registered and treated as separate centres, even if they form part of the same institution. This rule exists simply to ensure that verifiers do not have to travel outside a five-mile radius when verifying any one centre.

The benefits can be:

- an increased number of staff and ranges of expertise;
- a broader physical resources base;
- a variety of programme locations;
- an increased number of units offered;
- a shortening of the time between enquiries and delivery of individual units by staggering programmes between centres.

Programme design for NVQs can be considered a local matter if not an individual student matter since the awarding body does not demand a particular structure to the programme. Colleges, therefore, can design their programmes in close co-operation with local employers, TEC trainees and other bodies, for example, ET training managers in order to meet identified local needs.

Resource implications, like staffing levels, have been speculated upon in relation to NVQs. Within the project the view of such implications varies widely from, at one extreme, a resistance to increasing resources and, at the other, the support of a need for a considerable increase.

A college in a city area undertook co-operation with others through the city Economic Development Unit. Two colleges and a local ET organisation were involved. As well as bringing more resources together and rationalising training, closer links were developed between the providers of training and the city. Because of the development of effective local ET programmes, a broader, more flexible service is now available to employers. In addition, the initiative enabled bids for supporting funding to be made on a city-wide basis.

Employers and others outside the college will need to understand the nature and flexibility of NVQs as well as the resources available for delivery, in order to co-operate to produce effective local programmes.

A key resource issue has been the provision of workshop space and consumables for training and assessment. Most colleges suggest a need for an increase in workshop space to provide suitable facilities for the development and assessment of craft competences. It could be argued that extra space and consumables should really have been available before to allow realistic simulations rather than unrepresentative 'test pieces' being produced and assessed.

Two colleges in the project have acquired additional premises for training assessment which should offer areas dedicated to units of competence. This allows access at all times to learning and assessment opportunities for anyone wishing to acquire a unit of competence only. This contrasts with more traditional approaches which allocate space to a course.

The re-planning of workshop space and its utilisation have also allowed for the improvement of simulations giving trade follow-on and larger, more realistic and varying work areas.

ASSESSMENT

It is clear that the issue of assessment for NVQs is significant. NVQs require a thorough reappraisal of the assessment systems and procedures that colleges have developed over the years for traditional qualifications. The roles and functions of staff carrying out assessment change. They may have to liaise with awarding bodies for verification, recording and administrative functions. A range of assessment methods may be required, including direct observation of performance in the workplace and real work simulations, as well as written and oral methods. The relationship between student and assessor may change as students are given greater freedom to decide when to present themselves for assessment, and because it is now important for students to understand the assessment criteria themselves and that performance judged 'not competent' is not a 'failure' since assessment can, and often should, be repeated.

Assessment for NVQs may take place off the job, on the job or via a combination of both on-the-job and off-the-job locations. Off-the-job assessments must take place in centres approved by the awarding body for this purpose. Criteria for approval include those relating to facilities, materials and safety.

There is no prescribed **method** of assessment for the qualification or order in which units must be assessed although the awarding body does insist on assessors meeting certain criteria. Practical and knowledge components may be assessed independently or combined to form an individual element within a unit, a group of elements within a unit or a complete unit. In addition to practical assessments, students should have the opportunity of demonstrating their knowledge and understanding by answering questions either orally or in writing.

Assessment must be carried out by accredited assessors who should:

- have worked on the tools in the construction industry in the appropriate occupation for at least five years, OR worked as a supervisor in the construction industry in the appropriate occupation for at least five years;
- possess a recognised craft level qualification in the occupation or a recognised assessment qualification;
- be prepared to receive training in the assessment process.

The project looked in particular at the issue of workplace assessment which takes place on employer's premises.

A number of different approaches emerged. One college placed a member of staff with an employer on site to investigate the feasibility of workplace assessment; another college was able to negotiate concerning trainee work to increase assessment opportunities.

Employers' views generally on assessment on site were that they understood its value and would welcome a true view of competence at work. However, many were not willing to make the necessary time commitment to ensure assessment opportunities. The employers involved in the project did not appear to have any strong objections to assessors visiting the workplace.

Much of the industry is involved in renovation, maintenance and repair activities where many of the competences to be assessed are unlikely to arise in any consistent or standard form. In many cases this work is undertaken by small firms who wish to train but only have a limited range of work available at any one time. These factors make work-based assessments difficult to plan, organise and carry out.

Some employers, including local authorities, were prepared to re-organise trainees' work to enable workplace assessment. The motivation appeared to be the 'added value' obtainable from workplace as opposed to college-based assessment together with a degree of ownership of training and assessment opportunities.

Some issues colleges need to consider in designing and implementing workplace assessment procedures are:

- the variations in the nature and location of sites and the work being undertaken;
- the limited range of work undertaken by some specialist contractors which reduces learning and assessment opportunities;
- possible objections by the client or architect to on-site assessments or visits by external assessors although a contractor may be legally 'in possession' of a site;
- the need to seek the approval of the main contractor before carrying out assessment;
- timing and co-ordinating assessments in relation to work flow;
- the liability factor for assessors going on site;
- site safety and insurance for trainees and assessors. Site safety could be prejudiced if trainees are not fully briefed on safe working practices. Assessors may also need to ensure that safe systems of work have been established and that safe access and any relevant safety equipment have been provided before assessment begins. Visiting assessors would need a full safety briefing and would need to be provided with personal protective equipment;
- the assessment of people not in employment or on training placements;
- the validity of prior achievement in the workplace;
- the quality of standards on site in relation to performance criteria;
- the reluctance of employers to undergo assessor training or to carry out assessments;
- the attitude of employers to peripatetic assessors on site;
- the costs of running a peripatetic assessment scheme.

STAFF DEVELOPMENT

The need for effective FE staff development for NVQ purposes is well known and confirmed by the findings of *A Survey of Construction Craft Courses* (HMI, 1987-89).

The following plan sets out a possible framework for staff development resulting from the introduction of NVQs in the construction industry:

1. **NVQs:** their content and structure and the NVQ framework; the challenges and opportunities NVQs present.
2. Current policy and future developments of the **lead body** (LB) and awarding bodies.
3. **The construction industry:** current structure; operations and practice; the nature of large and small firms; the nature of jobs; likely future changes; the effects of entry into Europe on training and qualifications and the requirements to prove competence.
4. **Industry placements:** the benefits; obtaining staff placements; planning placement activities; feedback to programme development.
5. **Marketing:** what is marketing?; its effects on the whole organisation; staff roles in marketing; developing marketing plans; understanding markets; meeting the needs; promoting and selling training.
6. **Training needs analysis:** understanding jobs; job descriptions; employer and employee expectations; finding the real training needs.
7. **Programme design and development:** understanding the nature of NVQ programmes and the range of feasible options; using market and needs analysis information to design programmes in co-operation with employers; implementation.
8. **Counselling and guidance:** counselling methods at initial interview and throughout training; industry careers; developing feasible trainee action plans.
9. **Assessment:** feasible assessment strategies and tactics; assessment in the workplace; recording assessments; recording and certification procedures.
10. **Accreditation of prior learning (APL) and experience:** what is valid prior learning?; the nature and content of experience; obtaining evidence; APL as a component of a learning programme.
11. **Resourcing:** the nature of resources; planning resource needs; costing resources.

NVQs demand changes in the way construction departments in FE are staffed and managed. Staff development is fundamental to the success of NVQs and colleges in the project found that there may be a need for a reappraisal and a re-definition of the duties and responsibilities of existing staff once NVQs are introduced into the curriculum, as well as an appraisal of the range and balance of staff requirements.

In the short project time-scale, no staff changes took place but one college decided to recruit an administrator in the construction department to support the teaching staff and allow them to focus on the development and management of programmes. This allowed the functional separation of administrative support and record keeping from teaching, learning and assessment.

Colleges suggest that the range of staff needed to effectively deal with NVQs might be:

- staff to negotiate with industry and develop and implement programmes;
- staff to carry out training activities;
- staff to interview, counsel, assess prior learning and experience, and draw up personal action plans;
- staff to assess in the workplace and liaise on assessment with employers and with local or national monitoring staff;
- technical support staff;
- administrative staff.

This range of staff appears at first to be excessive and divisive but splitting functions can make the best use of individual skills. Some tasks may be combined and carried out by one member of staff. None of this is intended to suggest any pay or conditions differentials or to pre-empt any national negotiation on staff duties.

Where there are workshops with areas dedicated to individual units of competence and staff on duty in each area, there has been a need for the same number of staff as there was to support traditional programme delivery for the equal number of trainees but flexibility and opportunities for learning and assessment have increased.

In short, the lecturer must move from technical teacher to learning manager and there will be a great need for the expertise of existing staff even though their roles may change. They may also require the support of specialists in administration and other areas to release them to carry out activities more closely related to programme design development, delivery, assessment and management.

COSTS AND PRICING

It is too early to predict exactly what costs may be involved in offering NVQs, but these costs will be particularly evident in the areas of:

- staff development;
- consumables;
- realistic working environments;
- resource-based learning and assessment materials;
- assessment frameworks;
- record keeping and administration.

An Institute of Manpower Studies (IMS) report, *Implementation and Delivery of NVQs in the Construction Industry* (CITB, 1991), found that the costs of introducing NVQs are high compared with other occupational areas. In particular, providers may have to invest significantly in building, accommodation and space. Assessment areas, separate from training workshops may be needed and full-sized models may have to be constructed.

KEY ISSUES AND CONCLUSION

Training and education in the construction craft industry for the 1990s and beyond is likely to be very different from what has gone before. As a result of changes in the industry, in qualifications and in education and training provision, it is likely that there will be:

- a greater emphasis on the demonstration of competence and the provision of wider access for aspiring craftspeople from all age groups;
- a need for systems which recognise individuals' past achievements;
- programmes which allow for individual trainee progress and give opportunity for credit accumulation;
- realistic assessments which reflect activities undertaken in the workplace;
- an increasing need for effective training in a limited range of skills, i.e. part of a trade, for specialists and/or multi-skilling across a range of occupations and activities.

The development of NVQs for the construction industry presents FE colleges with a wide range of opportunities, not the least of which is the chance to move closer to, and to develop and maintain working relationships with the industry they serve.

The flexibility in design and implementation will allow colleges to explore new markets which have been closed in the past by limitations on course entry, time and content, together with the lack of proper recognition of prior achievement.

Colleges could offer a variety of services, from accrediting prior achievement for a single unit of competence to providing the learning and assessment for qualifications at all NVQ levels, as and when they become available.

Colleges must be able to provide the resources and environments to meet the requirements of the NVQ both for assessment and training purposes.

Because NVQs attest to occupational competence they require the assessment of competence under conditions which, as far as possible, are comparable to the work situation within that occupation category.

It is important for colleges of FE to be able to respond to the demands imposed by particular NVQs and, therefore, it is necessary to evaluate the extent to which colleges can meet the criteria of 'realistic working environments'.

The introduction of NVQs could enable colleges to increase participation rates by offering greater flexibility in programmes of learning and developing better relationships with employers. Some of the issues, however, that will need to be addressed in realising the potential of NVQs are listed below.

- The costing and allocation of resources may have to be reappraised with the advent of NVQs. Course-based costing systems may give way to unit-based systems, and training space and its uses re-evaluated.
- The effective use of the training/learning opportunities gained by co-operation with other colleges or training providers and at the workplace and the opportunities for APL and assessment in the workplace may offset perceived additional resource implications for the college.
- Because programmes will need to be more flexible and accessible it appears logical to turn, as some have already done, to the 48-week year to gain improved utilisation of expensive resources. The industry and individuals may also require learning and assessment opportunities to be available outside normal working hours or days. Thus, there could be a real demand for evening, weekend or holiday period provision, or for short programmes to run in line with slack periods for employers.
- The cost of materials for training may be greater. A simple view is that unit costs will have to allow for materials but it is feasible that programmes which allow for individuals' past achievements and workplace learning opportunities may offset some materials needs.
- TECs will be controlling some funding for programmes leading to NVQs. Discussions could take place with TECs which might begin with identifying training needs prioritised by the TEC and move on to identifying the resources necessary to meet those training needs.

- The whole area of resourcing NVQs will need further realistic investigation regarding strategies and their cost implications. There are opportunities to share resources between colleges, and between colleges and industry and to use the resources of the workplace to much greater effect. The need for allocation and costing of resources must form part of the college or departmental business plan.
- Staff development is essential to enable lecturers to become skilled in the provision of flexible learning opportunities and the competence assessment process as required by NVQs.

It is clear that the construction industry has changed and will continue to change, that funding is going to be geared to NVQ provision and that FE itself must change in order to accommodate both industry and fully-accredited NVQ requirements. Colleges must seize this challenge now, or run the risk of failing to meet industry needs and educational and training requirements.

Additional information

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